RESEARCH HIGHLIGHTS

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THE EVOLVING IMPACT OF E-COMMERCE ON CANADIAN HOME OWNERSHIP FINANCE ACCESS AND AFFORDABILITY

Introduction

E-commerce describes the process of conducting trade via Internet-enabled technologies. E-commerce makes the computer and the Internet network central to the processes of communication and collaboration between trading parties. In relation to mortgages, e-commerce describes the hardware, software and network applications that allow stakeholders in the mortgage process to share and collaborate electronically to originate, close and service a consumer mortgage online.

The focus of this study is to understand how the processes and stakeholders within a mortgage offering may be affected by e-commerce technologies and to examine the impact of these changes on Canadian home ownership finance affordability and accessibility in the period to 2006.

To date, the mortgage industries in Canada and the United States have emphasized e-commerce development differently. Therefore with the intent of understanding broader trends in the Canadian mortgage market, the report compares and contrasts U.S. and Canadian mortgage provision models and stakeholder roles in order to understand the effects of e-commerce technology on the mortgage industry structure and ultimately on the Canadian consumer.

Methodology

The findings are based on an extensive primary and secondary research effort comprising:

- Over 170 documented articles, journals and Web sources; and,
- Over 50 interviews conducted in 2001 with industry stakeholders in the U.S. and Canada, including executives of traditional and Internet banks and monoline mortgage lenders, third-party service providers, consulting firms, regulators, mortgage insurers, and real estate law professionals.

The research focused primarily on institutional responses to e-commerce technologies. The author's findings reflect the views of the opinion leaders in the Canadian and U.S. mortgage industries and related policy bodies. Because of the competitive nature of the mortgage market in Canada and the U.S., these insights are not directly attributed in the report. The study and findings were extensively reviewed by interview participants and other industry leaders in draft form to validate information, assumptions and conclusions.

Background

A mortgage describes a complex series of risk assessment, legal and financial processes involving multiple private and public stakeholders. The report uses the conceptual tool of the value chain (see Figure 1) to investigate the impact of e-commerce within the mortgage industry. The mortgage value chain is comprised of six key processes:

- Origination,
- Closing and Fulfillment,
- Funding and Investment,
- Servicing,
- Delinquency Management, and
- Product Design.

These functions are common to the mortgage process in both Canada and the U.S., although the study found that the role of various stakeholders within the mortgage value chain differed significantly, as explained below. These differences in roles were found to account for differences in industry structure and economics, and ultimately in the anticipated impact of e-commerce technologies.

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Figure 1: Summary of Mortgage Value Chain Process and Stakeholder Roles

	Origination	Closing & Fulfillment	Funding & Investment	Servicing	Delinquency Management	Product Design
Canadian Mortgage Stakeholders	• Bank/Lender • Broker • Mortgage Insurer • Credit Bureau	• Bank/Lender • Broker • Lawyer • Title Insurer • Appraiser • Real Estate Agent • Home Vendor	• Bank/Lender • MBS	• Bank/Lender	• Bank/Lender • Lawyer/Courts • Mortgage Insurer	• Bank/Lender • Mortgage Insurer
U.S. Mortgage Stakeholders	• Bank/Lender • Broker • Mortgage Insurer • Credit Bureau • Developer • Secondary Market conduit • Private insurers	• Originating Bank/Lender • Broker • Lawyer • Title issuer • Title company • Appraiser • Real Estate Agent • Wholesale bank • Secondary market conduit • Home Vendor	• Bank/Lender • Wholesale lender • Secondary market conduit • Servicer	• Wholesale lender • Secondary market conduit • Servicer	• Wholesale lender • Secondary market conduit • Servicer • Collections company • Community service organizations • Lawyers/Courts • Mortgage Insurer	• Wholesale lender • Secondary market conduit • Servicer • Software companies

Source: Organic, 2001

The structures of the Canadian and U.S. mortgage services industries are quite different. In Canada, financial institutions tend to be large, national, self-sufficient entities which, as a rule, do not look to external service providers to provide substantial components of their operations. Instead, Canadian financial institutions have tended to build proprietary mortgage processing and handling solutions within their corporate structure. The large scale and broad scope of these companies gives them economies in terms of processing and investment. Therefore, it is more likely in the Canadian scenario that a mortgage process is owned by the financial institution, as are the funding and computer systems supporting the mortgage process.

U.S. financial institutions have evolved differently given differences in regulatory and competitive structures. The U.S. mortgage services industry is comprised of about 100,000 companies. As a result the way the industry attempts to achieve economies of scale is through their suppliers. U.S. financial institutions, as a rule, tend to outsource significant components of their mortgage processes to other companies (e.g. computer systems and work-function outsourcing). U.S. mortgage products are comprised of a series of outsourced components. Therefore, in the U.S. model, it is not unusual for the mortgage, while bought from one bank, to be serviced by a specialist servicing company and funded by another financial intermediary. This model is commonly referred to as a multi-party model. The multi-party stakeholder environment in the U.S. mortgage banking system carries through also to related processes, such as title registration. The U.S. mortgage and title processing environment is significantly more complex, given the larger number of potential parties involved in the transaction there than in Canada.

The U.S. system is also more flexible, sustains a wider range of competitor types and is suspected to better support innovation.

The smaller number of mortgage industry competitors in Canada, however, indicates neither a lack of economies of scale (which are accomplished through bank size and vertical integration) nor a lack of competition for consumers (as there is competition with regard to both price and non-price mortgage features).

In regard to e-commerce, many interviewees expressed the view that it is often the smaller and newer companies that are the most innovative. Such companies are much more common in the U.S. mortgage industry than in the Canadian industry.

Findings

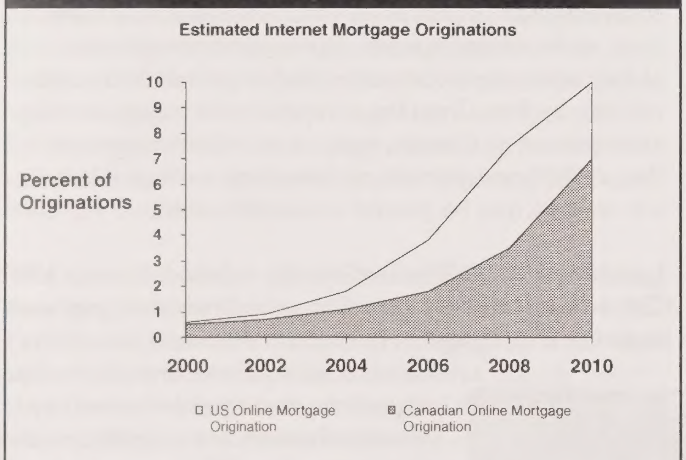
Many interviewees expect E-commerce technologies to enable and strengthen trends already present in the market. While there has been considerable hype about e-commerce technologies in the popular media, the conclusion of this report is that e-commerce technologies, of themselves, are not a significant change agent in the Canadian mortgage industry through 2006. The effects of e-commerce are expected to be modest over this period, acting to strengthen the impacts of both previous technology advances made by the industry and other underlying trends in the market, such as outsourcing.

Mortgage industry firms will take different approaches in implementing e-commerce technologies. Interviewees generally indicated that most banks and other lenders in Canada and the U.S. are taking

an incremental approach to implementing e-commerce solutions in their infrastructure. While a few interviewees indicated that they were considering going ahead with pilot projects of specific applications of e-commerce methodologies in their mortgage environment, respondents generally suggested that most significant e-commerce efforts in Canada are on hold until there are clear software or operational solutions in the market, as currently there is lack of clarity in the market about standards, capabilities and compatibility with existing work processes.

The most significant effects of e-commerce technologies are not expected to be felt in the Canadian market until after the 2006 timeframe. However, some changes in the Canadian mortgage industry, such as implementation of electronic documentation and workflow technologies, are expected to be enabled by technology between 2001 and 2006, and the effects of the changes enabled by e-commerce technologies are expected to be substantial in the long term beyond 2006. Several respondents noted that the impacts of these changes in time may encourage the Canadian mortgage industry to evolve toward a multi-party model—although they suggested that the Canadian multi-party model would likely not be as extreme as the current U.S. industry model in terms of scope and size.

Figure 2: Online Mortgage Originations 2000-2010: Canada and United States



Sources: Morgan Stanley Dean Witter, Organic Interviews

The consensus of the respondents is that online originations will remain limited in the 2001-2006 timeframe in both Canada and the U.S. Online mortgage originations are expected to increase from approximately 0.5 per cent in 2001 in both countries, to 2 per cent in Canada and 4 per cent in the U.S. by 2006. Given differences in structure and brand appeal, U.S. online originations are expected to grow earlier than in Canada, which remains well serviced by branch and broker structures. The research indicated that consumers in both countries currently overwhelmingly prefer dealing with humans for mortgage transactions given the relative importance and perceived complexity of the transaction. Thus, early prognostications of online lender dominance have not been borne out in the market. Consumer willingness to transact mortgages online may change slowly as people become more familiar and more confident in online transactions generally.

Based on the research, the author concluded that e-commerce technologies such as electronic data interchange may hasten an evolution in Canadian mortgage services between 2001-2006, away from vertically integrated mortgage fulfillment processes (i.e. where a lending institution manages most components of a loan), towards a multi-party processing structure involving a number of third-party providers in operations, technology and funding roles. The forces driving this change, already contained in the current market, include:

- continuing pressure for cost management;
- increased interest in outsourcing to service providers to improve cost management in the mortgage services industry in general and specifically for mortgage sales, technology and operations; and,
- blurring boundaries of stakeholder roles resulting in potential competition among more stakeholders (e.g. lawyers could compete online with mortgage brokers and realtors).

The ability of e-commerce to foster work collaboration between otherwise unrelated stakeholders suggests that it could become economic for the Canadian mortgage industry to increasingly rely on multiple outsourced service providers across more functions involved in the mortgage process. If this occurs, the Canadian market would increasingly resemble the American industry with strong supplier level competition at various stages of the mortgage process.

New mortgage entrants (i.e. specialist mortgage providers, small banks, etc) are at a significant profit disadvantage compared to integrated financial institutions in the current Canadian environment. In addition to pricing strategies, the lack of an available outsourcing environment was also identified as a significant hurdle to entry in the interviews. The lack of readily available processing, technology and funding component offerings from third parties means that new entrants would have to heavily invest in developing their own mortgage processes, thus consuming scarce technology, intellectual and investment capital. Further, smaller entrants have to continue to invest as new technologies and the competitive environment dictates. Thus, in combination with the pricing environment, the lack of an outsourcing environment will continue to contribute to market and product dominance of the existing large lending institutions. Finally, the role of the

banks as primary wholesale lenders to other mortgage originators also means that smaller lenders will always be in a strategically vulnerable position as their main competitors are also their suppliers of funds.

This is a significant difference compared to the U.S. market where the monoline mortgage companies have led product, process and pricing innovation. The research and the interviews indicate that product, pricing and technology innovations are being driven by non-banking lenders in the U.S. . Industry leaders in the U.S. are making significant investments in e-commerce technology across their operations. Smaller companies like LendingTree and Quicken have also driven industry thinking through their unique distribution and marketing models. In Canada, it has been the large banks that have driven mortgage e-commerce innovation, but that innovation has been conservative, iterative and contained. In light of this, the impact of e-commerce on the consumer is predicted to be more substantial in the U.S. than in Canada, as market forces and competitive dynamics fuel innovation in the U.S. mortgage market.

A move to move toward a multi-party mortgage model Canada may address several perceived cost impediments to entry for new monoline mortgage companies in the Canadian mortgage market at the present time. In particular, the lack of readily available outsourced solution providers in mortgage operations, technology and support services currently limits the ability of a new or foreign lender to enter the Canadian mortgage market. Many of the interviewees felt there was a lack of sufficient additional people with specialized skills to staff new firms and support innovation; the existing relatively small industry talent pool is contained within the existing large financial institutions. However, growth in e-commerce enabled software and operations suppliers will eventually create the groundwork for improved accessibility to emerging Canadian and U.S. based mortgage lenders.

The immediate environment for investing in e-commerce technology in Canada is tempered by low returns. The lack of expected direct return of mortgage process investments and an increasingly flat revenue environment suggest that Canadian mortgage managers will increasingly face cost cutting pressures. Given that there are few other areas where savings can be accrued in the current environment, savings are likely to be sought in technology related spending. Thus investments in mortgage related technology will be made only if there is a significant and demonstrable short-term return related either to cost savings or revenue generation. This short-term focus on cost management may place Canadian lenders in a precarious position in the future, should an aggressive player make a breakthrough vis-à-vis the cost of processing. However, this is a relatively unlikely scenario in the 2001-2006 timeframe given the current market environment.

Most interviewees anticipate that e-commerce technologies have the potential to reduce lender one-time and ongoing process costs. However, there was a wide range of views as to the timing, magnitude and incidence of cost savings directly attributable to e-commerce, given differences in individual firm infrastructures and technology strategies. Depending on infrastructure and technology choices; the impact is expected to be reductions of up to one-third in one-time costs and one-quarter in annual operating costs; however, these potential process cost reduction estimates do not take into account any costs, such as infrastructure capital and training costs, of implementing e-commerce. Such implementation costs will vary by firm. Given the competitive mortgage lending environment in Canada, many respondents suggested that a significant portion of these cost savings, if they are realized, may be passed on to consumers.

Lender profitability is directly related to way the Canadian industry handles one-time charges and fees for mortgage origination. As noted above, the internalization of one time costs (i.e., origination, closing and renewal) by Canadian lenders are a significant part of mortgage line of business contribution differences between U.S. and Canadian lending institutions and therefore consumer pricing differences. Interviewees expect that Canadian lenders will gradually move to cost-sharing models with consumers, based on product features, service and channel choices, risk criteria and other related costs associated with the origination and closing of the mortgage. As a result, direct consumer fees are expected to increasingly become prevalent at the origination and closing phases of the

Figure 3: Impact of E-Commerce Technologies: Summary of Potential Process Cost Savings by 2006

Value Chain Item	Estimated Cost Impact
One Time Costs	
Origination	- 10%
Closing & Fulfillment	- 40%
Annual Costs	
Funding & Investment	- 15%
Servicing	- 40%
Default Management	- 60%
Product Design	- 10%

Expected impact on Canadian mortgage lenders:

- One-time costs could be reduced by up to one-third
- Operating costs could be reduced by up to one-quarter
- Note: Does not take into account costs, such as capital costs, of implementing e-commerce

Source: Organic, 2001

mortgage based on consumer choices of product features and delivery channels. However, there were several interviewees who did not share this view, given the current competitive environment; they did not foresee much change from the status quo.

Some respondents suggested that, contingent on general market competitiveness, fees for broker services would likely be introduced in the 2001-2006 time period, especially given the relative growth of broker originations. However, with the payment of fees, consumers would also presumably obtain greater product and service flexibility, lower interest costs and improved choice of providers. As a result, Canadian mortgage consumers would pay less for specific mortgage product features and the ancillary services they require. However, the implementation of fees in the consumer market would likely be mitigated by competitive and consumer pressures—particularly if the lenders act to introduce fees without demonstrating cost reductions in mortgage rates.

Ultimately, the implementation of e-commerce technologies in Canada will largely be justified on the basis of cost savings, rather than as a revenue generator, for lenders. In part, this rationale is based on the relative ease of quantifying cost savings versus accurately predicting attributable incremental revenue within the lender business structure. The cost savings potential identified is based on the existing extensive document management structure that could potentially be digitized in order to facilitate collaboration and communication between banks and stakeholders like lawyers, appraisers and agents. The five key e-commerce technology trends that lenders and stakeholders are expected to explore between 2001 and 2006 are outlined in Table 1.

The core functions performed within the existing mortgage value chain will continue in the 2001-2006 timeframe; however, the roles played by individual stakeholders are expected to evolve slowly over time as individual companies and lenders seek to alter their cost structures or expand their value. E-commerce will alter the mortgage workflow as the technology:

- standardizes electronic data transfer between stakeholders,
- eliminates latent barriers to information transparency in the market, and,
- automates value creating activities that are otherwise performed manually.

All stakeholders will be forced to look to their core offerings and defend them against new entrants as e-commerce technologies reduce the barriers for entry. As a result, the power structures and relationships between various existing stakeholders are expected to ultimately move away from being bank-centric to being consumer-centric. Canadian mortgage consumers should benefit from this transition in terms of increased competition, lower costs and more flexible product offerings.

Likely winners will be low net-cost or high value providers. Pressure for cost savings means that every supplier in the mortgage value chain will look to how they can add value to their offering and maintain their revenue streams. The respondents indicated that this will likely alter current supplier-provider stakeholder relationships, as individual companies seek to broaden their product and service offerings in order to create value for their customers (see Table 2). Given that multi-party workflow involves the co-ordination of a number of processes and information flows, there is significant value in creating and controlling key value activities—that is, activities that can exist independently or on which other stakeholders rely. As a result it is expected that stakeholders in the mortgage process (individually and as segments) will jockey for such valuable positions in the value chain. Further, the existing strategic positions in the Canadian mortgage process (e.g. lenders, lawyers, etc) are open to competitive forces of peripheral stakeholders (i.e. brokers, title insurers and software companies) who are more willing and able to innovate and reduce the net costs of service.

Stakeholders who are slow to adopt key technologies and standards, those that do not create value above being an information broker, and high cost contributors will likely be losers. Already noted is the expectation that the Canadian mortgage industry will move to outsource closing and servicing operations to third-party specialists. Likewise, stakeholders such as lawyers may increasingly feel competitive pressures from title and software companies, although they too may increasingly move into the mortgage brokerage and real estate sales functions.

E-commerce may facilitate an evolution of the Canadian mortgage market toward the U.S. multi-party model. In the U.S., secondary market conduits (see Figure 4) are organizations such as Fannie Mae, Freddie Mac and Ginnie Mae (often referred to as Government Sponsored Enterprises, or "GSEs") that act as middlemen between the secondary investor market and the primary mortgage origination market. By buying mortgages at the time of origination and turning mortgages into liquid investment securities (Mortgage Backed Securities, or "MBS"), the conduit attracts capital from institutional investors and directs it into the mortgage market. That these securities are traded on financial markets helps to stabilize the secondary market investment environment. Each secondary conduit use e-commerce to electronically assess the mortgage and to confirm that it has met its criteria and that it will purchase the mortgage at the time of origination from the originator (bank, mortgage broker or online lender).

Table 1: E-Commerce Technologies and Their Impact on Canadian Mortgage Environment	Technology Use	Current Use(s)	Expected Impacts 2001-2006
Electronic Documents	• Converting paper based forms to electronic data and processing	• Canadian lenders have a relatively high penetration of electronic data in mortgage operations but paper is still used to communicate to non-lender stakeholders.	• Canadian lenders will focus on proprietary technologies to improve their interface with consumers and stakeholders (e.g. lawyers).
Personalized Selling	• Improve online sales functionality through predictive modeling and proactive suggestions.	• Several lenders are exploring how to use these technologies but generally the applications are still under development. • Consumer privacy and annoyance concerns still limit use of that technology.	• Lenders will incrementally invest in building databases and integration points with call centres and branches to follow up online activity with a timed call from a mortgage representative.
Risk Management and Pricing Technologies	• Heightened ability to quantify risks and thus reduce risks associated with account default and funding management.	• High penetration of risk technologies within individual components of value chain but processes not integrated. • Lenders are actively migrating risk technologies to e-commerce platforms. • Credit bureau data and scoring mechanisms are inconsistent and non-transparent.	• Risk applications will be extended throughout the value chain in order to give lenders real time risk data. • Risk data will be shared with involved stakeholders within the lender's mortgage process. • Risk data and scoring will become standardized in the industry.
Mortgage Broker Technologies	• Improve ability of the broker to sell mortgage products via sales management tools that allow brokers to access and compare mortgage product information.	• Canadian lenders are investing heavily in building tools that allow brokers to sell. Brokers are generally on the accepting end of lender decisions and software choices.	• There will be friction between lenders and brokers on software capabilities and functions - with lenders seeking to contain brokers and brokers looking to expand their value proposition across the value chain (i.e. funding or servicing).
Application Service Providers and Outsourcing	• Internet accessible software solutions and/or Internet accessible operations solutions	• Canadian lenders are not generally heavily invested in outsourcing operations. If they are, current arrangements tend to be black-box outsourcing (i.e. collaboration between stakeholders is minimized).	• Canadian lending community increasingly looking to augment proprietary software and operations solutions with third-party offerings.

In the Canadian environment, there is no such secondary conduit that directly purchases mortgages at the time of issuance, serving as a wholesale funding agency to originators who do not have their own source of mortgage funding. The large financial institutions issue MBS to securitize their mortgages. (CMHC performs a guarantor role for banks issuing MBS, and for the Canadian Housing Trust which purchases MBS and issues mortgage backed bonds, referred to as Canada Mortgage Bonds, or "CMB".)

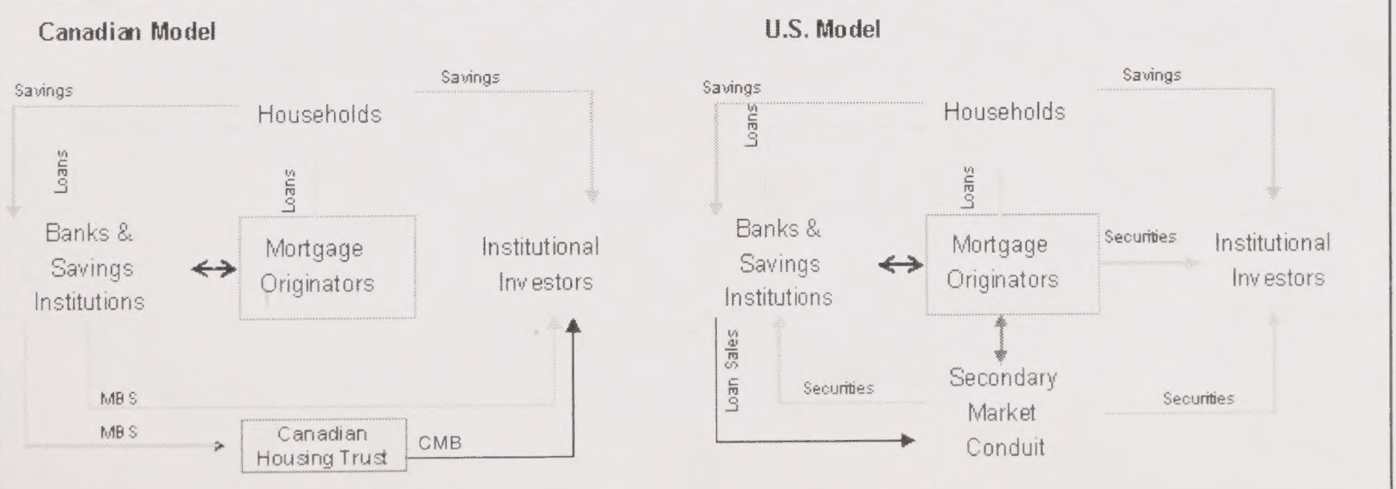
Table 2: Summary: Canadian Mortgage Stakeholders Winners and Losers 2001-2006

Value Chain Segment	Trends	Winners	Losers
Origination	• Consumer movement to "Clicks & Bricks" channels. • Low interest in Internet only offerings • Increased market share for brokers	• Brokers • Niche mortgage players • Real estate agents • Lawyers • Monoline low cost lenders	• Financial institutions with high retail channel costs • Internet lenders
Closing & Fulfillment	• Automation of closing processes	• Specialist providers • Economies of scale operations environments • Electronic registry providers/title insurers	• Property appraisers • Lawyers
Funding & Investment	• Larger role for secondary markets • Increased automation of risk management processes and information sharing	• Low cost lenders • Brokers • Investment funds • Sub-prime lenders	• High-cost providers
Servicing	• Outsourcing of servicing operations to specialist providers	• Lowest cost providers • Software companies • Consultants	• High-cost providers • Late adopters of risk monitoring technology
Delinquency Management	• Introduction of risk identification technology • Automated delinquency process management systems	• Economies of scale providers • Foreclosure process specialists	• Lawyers (whose role is reduced by automated systems)
Product Design	• Outsourcing of product systems • Introduction of componentized technology products	• Application service providers • Consultants • Software specialists	• In-house IT departments

There is thus a significant difference between U.S. and Canadian mortgage models. For example, when U.S. originators look for funding for originating loans, they have a choice between secondary market conduits and other wholesale lenders. In Canada, originators such as brokers do not have direct access to secondary market capital and as a result must originate a loan through an existing (and, likely competing) lender.

To the extent that e-commerce facilitates unbundling of mortgage industry processes in Canada and entry into the Canadian mortgage market, secondary markets could become more important primary origination market funding mechanisms, meeting increased demand for funding from brokers, small banks and new entrants wanting a mortgage funding source other than the big lending institutions with which they are competing.

Figure 4: U.S. and Canadian Mortgage Market Financing Models



Source: International Union for Housing Finance, Organic 2001

The impact of e-commerce on home ownership finance accessibility should be positive. In addition to potentially reducing costs, e-commerce is expected to enable lenders to cost-effectively improve mortgage choices or features for consumers. There is already a very high level of mortgage finance access provided to consumers by existing Canadian lending institutions.

Conclusion

The immediate impact of e-commerce will be initially modest and incremental but the effects will be cumulative. Not surprisingly, the report expects the evolution resulting from e-commerce technologies to continue beyond 2006. The mortgage industry in Canada has undergone significant evolution over the last 25 years. Changing consumer demographics, increased consumer mobility and an evolving structural transformation are all pressuring the mortgage industry in Canada. The net effects of these trends will have considerably more impact on the Canadian mortgage industry than the anticipated effects of e-commerce technologies alone.

Nevertheless, e-commerce is expected to improve business communications and workflow, fuelling competitive trends already present in the financial services sector. E-commerce technologies have the longer-term potential to facilitate an evolution in the Canadian mortgage industry from large, vertically structured companies toward an American-style multi-party mortgage industry structure reliant on a number of competing outsourced operations, technology and funding providers.

The development of an extensive outsourcing community in Canada could dramatically lower the cost impediments to entry into the Canadian mortgage market and increase competition at all levels, benefiting consumer choice and affordability. Although these changes may begin in the market within the 2001-2006 period of focus for this report, the largest effects, if they materalize, will take place beyond 2006.

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Research Report: *The Evolvong Impact of E-commerce on Canadian Home Ownership Finance Access and Affordability*

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Housing Research at CMHC

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